

Ann Thorac Surg 2002;73:779-784
 © 2002 The Society of Thoracic Surgeons

Original article: cardiovascular

Aortic valve surgery after previous coronary artery bypass grafting with functioning internal mammary artery grafts

John G. Byrne, MD*^a, **Alexandros N. Karavas, MD^a,**
Farzan Filsoufi, MD^a, **Tomislav Mihaljevic, MD^a,**
Lishan Aklog, MD^a, **David H. Adams, MD^a,**
Lawrence H. Cohn, MD^a, Sary F. Aranki, MD^a

* Division of Cardiac Surgery, Brigham & Women's Hospital, Boston, Massachusetts, USA

* Address reprint requests to Dr Byrne, Division of Cardiac Surgery, Brigham & Women's Hospital, 75 Francis St, Boston, MA 02115 USA
 e-mail: jbyrne@partners.org

Background. Aortic valve surgery after coronary artery bypass grafting (CABG) in the setting of patent pedicled internal mammary artery (IMA) grafts poses a high risk because of the underlying ischemic and valve disease. Unlike mitral valve surgery or CABG, in which aortic clamping (AoX) may be optional, aortic valve surgery uniformly requires AoX unless circulatory arrest is used. Management of the IMA graft in these circumstances has traditionally involved dissection and clamping to prevent regional myocardial warming and cardioplegia "washout" during AoX. An alternative strategy involves avoiding dissection of the IMA, leaving the IMA graft open and establishing moderate-to-deep hypothermia during AoX and cardioplegic arrest. To date, no study has been published documenting the safety and efficacy of the latter practice.

Methods. A total of 94 patients who had patent IMA graft and underwent aortic valve surgery under AoX and cardioplegia between April 1992 and March 2001 were analyzed. The IMA was avoided and left open during AoX, and the patients were cooled systemically (median 20°C). Patients ranged in age from 55 to 90 years (median 73.5 years). Ejection fraction was 15% to 83% (median 50%). Of the patients, 18 (19%) underwent minimally invasive upper hemi-esternotomy. Analysis for predictors of outcome was performed.

Results. The operative mortality, perioperative myocardial infarction (MI), and stroke rates were 6.4%,

- ▶ [Full Text of this Article](#)
- ▶ [Reprint \(PDF\) Version of this Article](#)
- ▶ [Related articles in ATS](#)
- ▶ Similar articles found in:
[ATS Online](#)
[PubMed](#)
- ▶ [PubMed Citation](#)
- ▶ This Article has been cited by:
[other online articles](#)
- ▶ Search PubMed for articles by:
[Byrne, J. G. || Aranki, S. F.](#)
- ▶ Alert me when:
[new articles cite this article](#)
- ▶ [Download to Citation Manager](#)

- ▶ Collections under which this article appears:
[Valve disease](#)

- ▶ Author Home Page(s):
[John G. Byrne](#)
[Alexandros N. Karavas](#)
[Tomislav Mihaljevic](#)
[Lishan Aklog](#)
[David H. Adams](#)
[Lawrence H. Cohn](#)
[Sary F. Aranki](#)

7%, and 11%, respectively. No significant independent predictors of operative mortality or MI could be identified in the multivariate analysis, although a trend was shown for operative mortality with urgent procedures and patients requiring concomitant surgery of the ascending or arch aorta or aortic root. Advanced age and prolonged cardiopulmonary bypass predicted stroke in the multivariate analysis. There were five (5%) IMA injuries, all occurring during reentry or mediastinal dissection, but none in the subgroup of patients who underwent minimally invasive procedures. All patients survived.

Conclusions. Patients undergoing aortic valve surgery after CABG in the presence of patent IMA represent a potentially high-risk group. Because AoX is almost uniformly required, a decision regarding the management of the IMA pedicle is needed. We have found that leaving the IMA undissected and unclamped is a reasonable strategy, provided that systemic cooling for myocardial protection is established to prevent regional warming and to compensate for cardioplegia washout effect during AoX.

This article has been cited by other articles:



THE ANNALS OF THORACIC SURGERY

► HOME

R. Sharony, E. A. Grossi, P. C. Saunders, C. F. Schwartz, G. B. Ciuffo, F. G. Baumann, J. Delianides, R. M. Applebaum, G. H. Ribakove, A. T. Culliford,, A. C. Galloway, and S. B. Colvin

Aortic valve replacement in patients with impaired ventricular function

Ann. Thorac. Surg., June 1, 2003; 75(6): 1808 - 1814.

[\[Abstract\]](#) [\[Full Text\]](#) [\[PDF\]](#)



THE ANNALS OF THORACIC SURGERY

► HOME

E. Kuralay, F. Cingoz, C. Gunay, B. S. Oz, N. Kucukarslan, V. Yildirim, S.Y. Sanisoglu, E. Ozal, U. Demirkilic, M. Arslan, and H. Tatar

Supraclavicular control of patent internal thoracic artery graft flow during aortic valve replacement

Ann. Thorac. Surg., May 1, 2003; 75(5): 1422 - 1428.

[\[Abstract\]](#) [\[Full Text\]](#) [\[PDF\]](#)



THE ANNALS OF THORACIC SURGERY

► HOME

L. A. Vricella and B. A. Reitz

Reoperative aortic valve replacement with patent internal thoracic artery and venous grafts

Ann. Thorac. Surg., February 1, 2003; 75(2): 637 - 637.

[\[Full Text\]](#) [\[PDF\]](#)

The Journal of THORACIC AND CARDIOVASCULAR SURGERY

[► HOME](#)

M. Nakajima, K. Tsuchiya, Y. Naito, N. Hibino, and H. Inoue
How to establish myocardial protection during aortic arch operation in patients with patent left internal thoracic artery graft: Careful dissection or no touch technique?

J. Thorac. Cardiovasc. Surg., December 1, 2002; 124(6): 1254 - 1255.
[Full Text]



THE ANNALS OF THORACIC SURGERY

[► HOME](#)

A. Marc. Gillinov and B. W. Lytle

Reply

Ann. Thorac. Surg., November 1, 2002; 74(5): 1748 - 1748.
[Full Text] [PDF]



THE ANNALS OF THORACIC SURGERY

[► HOME](#)

N. Luciani, G. Nasso, and G. Possati

Aortic valve surgery after previous coronary artery bypass grafting with patent internal mammary artery grafts: Personal Contributions

Ann. Thorac. Surg., November 1, 2002; 74(5): 1747 - 1747.
[Full Text] [PDF]

Related articles in ATS:

Invited commentary

A. Marc Gillinov and Bruce W. Lytle
ATS 2002 73: 784. [\[Full Text\]](#)

[HOME](#) [HELP](#) [FEEDBACK](#) [SUBSCRIPTIONS](#) [ARCHIVE](#) [SEARCH](#) [TABLE OF CONTENTS](#)

[ASIAN CARDIOVASC THORAC ANN](#)

[EUR J CARDIOTHORAC SURG](#)

[J THORAC CARDIOVASC SURG](#)

[ALL CTSNet JOURNALS](#)

Copyright © 2002 by The Society of Thoracic Surgeons.